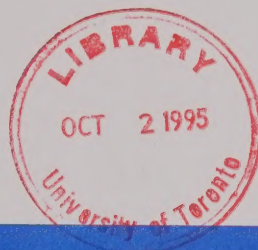# Research Paper Series

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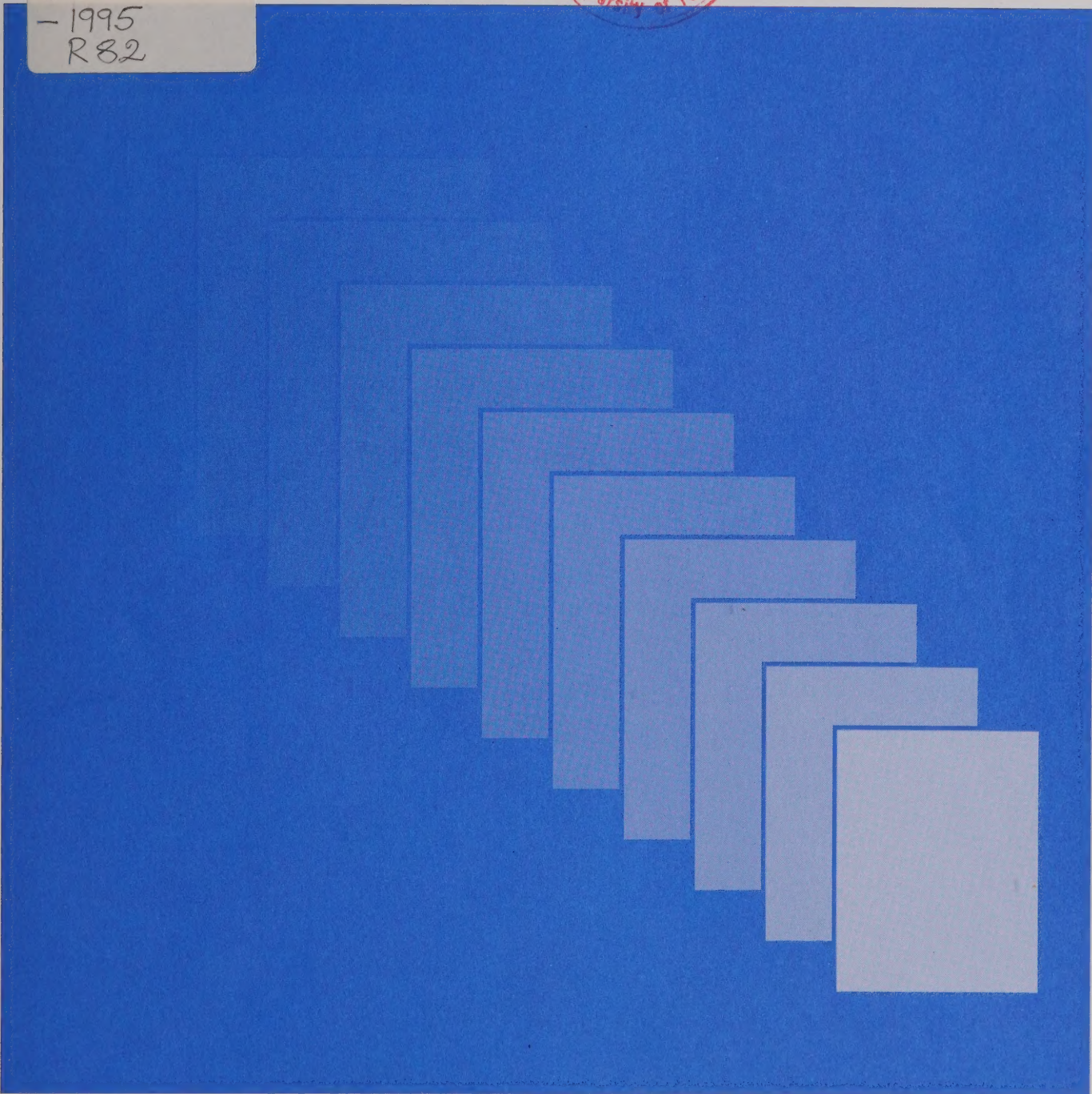
*Social Transfers, Changing Family Structure, and Low Income
Among Children*

by Garnett Picot and John Myles

No. 82

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Social Transfers, Changing Family Structure, and Low Income Among Children

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No. 82

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This paper represents the views of the author and does not necessarily reflect the opinions of Statistics Canada.

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ABSTRACT

Our aim in this paper is to resolve a paradox. Since the 1970s, there has been a downward secular trend in the average real and relative earnings of young adults under the age of 35. Despite the fact that most young children live in households headed by adults under 35, there has been no corresponding secular rise in the incidence of low income among children. Rather child poverty has followed the usual fluctuations of the business cycle.

We show that the relative stability in child poverty rates in the face of declining labour market earnings is a result of two factors. First, the decline in market income in young households with children has been offset by rising transfers. Since the 1970s, social transfers have replaced earnings as the main source of income among low income families with children.

Second, changes in the fertility behaviour and labour market characteristics of young adults have sharply reduced the risk of young children growing up in low income households. Today's young parents are better educated, working more hours, having fewer children, and postponing child-birth until later ages when earnings are higher. Although more children do find themselves in single parent families, this change has been swamped by other changes in family patterns and labour market behaviour that have reduced the risk of child poverty.

Thus, the upward pressure on low income among children stemming from the labour market has been offset by social transfers, on the one hand, and by changes in family formation and the labour market behaviour of young adults, on the other. Except for cyclical variations, the result has been relative stability in the incidence of low income among children over the 1980s and early 1990s. Whether these offsetting patterns will continue in the last half of the 1990s remains to be seen.

Key words: Poverty; Child Poverty; Earnings Inequality; Low Income.

Introduction

Rising inequality in labour market earnings became a characteristic feature of many western countries in the 1980s (OECD, 1993; Freeman, 1994). Associated with this development was a sharp decline in the earnings of younger workers (Davis, 1992). In Canada, for example, the real and relative earnings of workers under 35 declined between the late 1970s and 1986 and failed to recover during the economic expansion that followed (Myles, Picot and Wannell, 1988; Betcherman and Morissette, 1992; Morissette, Myles and Picot, 1994). The pattern was widespread, affecting young workers in virtually all industries and all education classes. In contrast some older adults (those not affected by unemployment) experienced a modest improvement in their labour market earnings.

The significance of these changes is magnified by the fact that the restructuring of the economic life course of young adults now appears to be relatively permanent. The decline in earnings of young adults began in the late seventies and accelerated during the recession of 1981-84. For men, the trend was not reversed during the recovery of the 1980s and in fact continued through the decade, albeit at a slower pace. Real earnings of younger women recovered somewhat over the decade, but for both sexes the earnings gap between younger and older workers widened substantially (chart 1). This occurred despite a decline in the relative number of young adults entering the labour market and a marked increase in educational levels—changes which would be expected to *increase* the wages and earnings of young adults. Earnings inequality within the young age groups also rose.[1] Thus, among workers under 35 average real earnings fell and inequality around this declining mean rose.

Since the majority (60%) of younger children (ages 0-6) live in households where the highest earner is under 35, we might expect the rate of child poverty to move upward as the earnings of younger adults decline. However, while the percentage of children below Statistics Canada's Low Income Cutoffs (LICOs) has risen during recessions and declined during expansions (Chart 2), there is little evidence of an upward secular trend in the percentage of low income children during this period. Some observers suggest that the value observed for 1993, which is above the highest value reported during the earlier 1981-82 recession, may be evidence of an upward trend during the 1990s. However, during the 1980s and early 1990s, the period of interest here, no such trend is evident and all of the movement appears to be associated with the business cycle.

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[1] The gini, a commonly used measure of inequality, increased more or less continuously from 0.427 in 1977 to 0.449 in 1989 for very young males (17-24) and from 0.270 in 1977 to 0.313 in 1989 among men aged 25-34. Inequality among young women (17-24) also increased. Inequality among women aged 25-34 fell largely because women working part-time were working longer hours in the late 1980s than in the earlier period, thus increasing their earning and decreasing inequality.

Chart 1:   Indexed Real Annual Earnings by Age, Men Working Full Year Full-Time
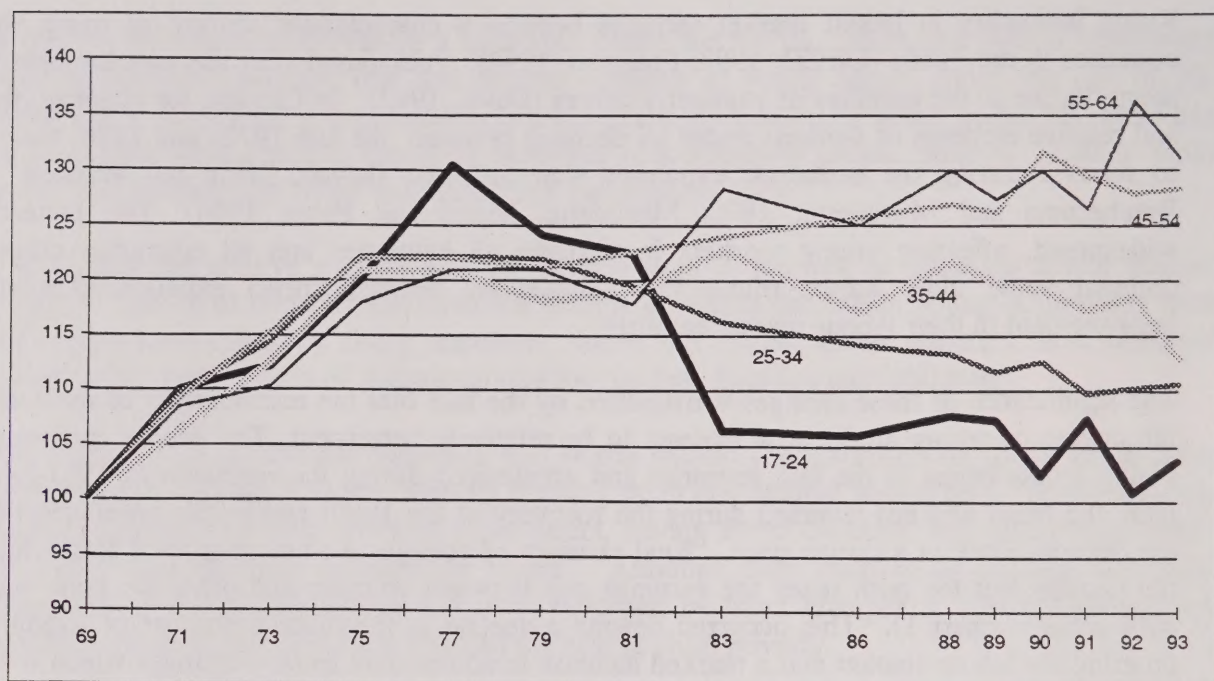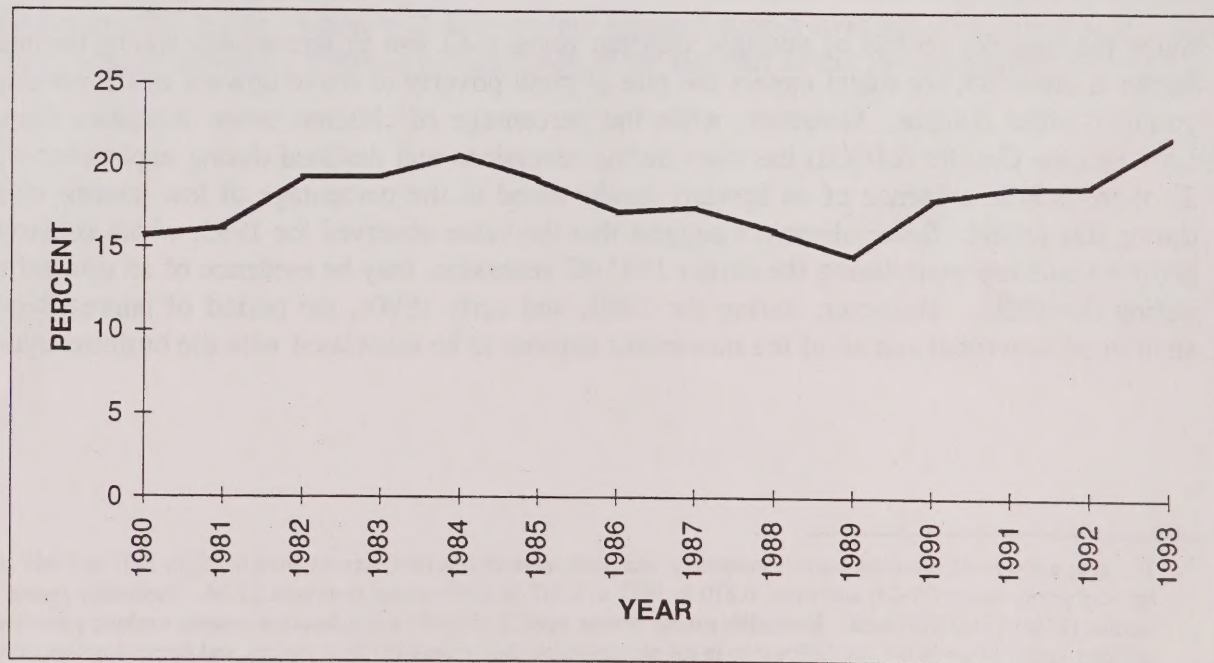

Chart 2: Rate of Low Income among Children (% Below L.I.C.O.)

Using a somewhat different measure of low income -- the proportion of children in families with less than 0.5 of median adjusted family income -- we reach similar conclusions.[2] There was a slight rise in the proportion of children aged 0-6 in low income families between 1981 and 1988 (from 14.8% to 16.0%), offset by a decline among children ages 7 to 14 (from 14.3% to 13.6%). Overall, however, the dramatic changes in the earnings of young adults in the past two decades are not reflected in changes of corresponding magnitude in the rate of low income among children.

The goal of this paper is to investigate this apparent paradox: long term stability in the incidence of low income among children in the face of dramatically declining relative and real earnings and rising earnings inequality among young workers (under 35). We begin by describing changes in family income by age and family type since the 1970s. We then assess the contribution of three factors to the changing economic circumstances of children: (1) declining market earnings; (2) transfer payments, and (3) the changing characteristics of families in which children live.

The Changing Incomes of Young Families

The growing earnings gap between younger and older workers is reflected in a growing gap in total family incomes between younger and older households. For example, the income of families whose highest earner is age 20-26 was 1.13 times the median adjusted income for all families in 1967 but fell to just 0.77 by 1991 (Chart 3).[3] In the 27-35 age group, relative median income also fell from a high of 1.17 in 1973 to 1.05 in 1991. The gainers were families between the ages of 35 and 54. Thus, relative median family income has been falling among young families. And since there has been little change in median income over the 1980s, this means that real median income has also been slowly falling among young families.

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[2] There is a variety of ways to measure low income. Family income is first adjusted for size and composition and then a cutting point in the distribution is established. Statistics Canada's Low Income Cut-Offs (LICOs) have historically been used to chart low income in Canadian families. Essentially, LICOs establish the cut-off at a level where families are spending significantly more family income on necessities (60 percent) than the average Canadian family (40 percent). A second approach widely favoured among scholars (Wolfson and Evans, 1992; Sharif & Phipps, 1994) is to construct the distribution of family income based on adult equivalent income and to classify as having "low income" those families whose income lies below 50 percent of median equivalent income. Since LICOs are only available for distribution of total family income we use the "50% Median" cut-off in this paper. Either method, however, yields essentially similar results (Sharif and Phipps, 1994)

[3] Data are for census families from the Survey of Consumer Finances for the years 1967, 1973, 1981, 1986, 1988 and 1991. To adjust for family size, composition and economies of scale, family income is adjusted using adult equivalency scales. These scales adjust family income for family size and composition, and convert the family income to a form of per capita income, where the income is per adult equivalent in the family. The equivalency scales allow for economies of scale in families, and hence the second person is given a lower weight than the first, under the assumption that many of the fixed costs are accounted for by the first person and hence the income of the second need not account for such costs. There are many such equivalency scales available including those implicit in the construction of Statistics Canada's low-income cut-offs. Here we adopt the "central variant" scale proposed by Wolfson and Evans (1992:46-47). The first person is given a weight of 1.0 and each additional adult a weight of 0.4. The first and each subsequent child is assigned a weight of 0.3 except in single parent families where the first child is assigned a weight of 0.4.

These results, however, are for all family types combined; including those with or without children. Disaggregating by family type (Charts 4 and 5) shows that the main impact of declining earnings among the young was experienced in households **without** children.

We first focus on families with the highest concentration of children, those where the highest earner is between 27 and 34 years old. Real median family income remained largely unchanged for families **with** children between 1981 and 1988, the peaks of the business cycle. This was true for both two-parent and single parent families (Chart 4). Among two-parent families **without** children, however, real median family income fell by 10%, and among unattached individuals by 11%. Similar patterns were observed among younger families aged 20-26 (Chart 5). Thus, declining earnings among young adults expressed itself mainly through falling incomes among family units without children.

Chart 3: Change in Relative Median Income, by Age of Family, Total Income
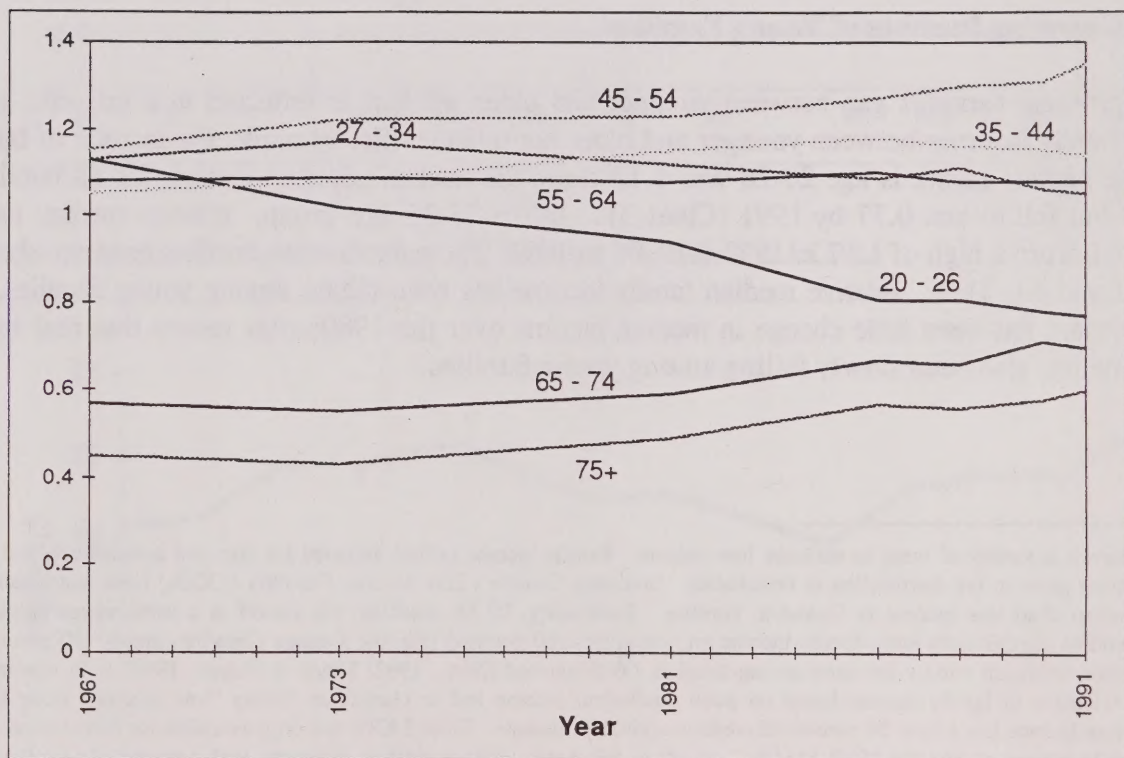
Chart 4: Real Median Disposable Income (AE Adjusted) Families 27 to 34

Chart showing lines for: 2 Parents, no Kids; Unattached Individuals; 2 Parents, 1-2 Kids; Lone-Parent Families. Y-axis $('000) from 0 to 35, X-axis Year from 73 to 91.
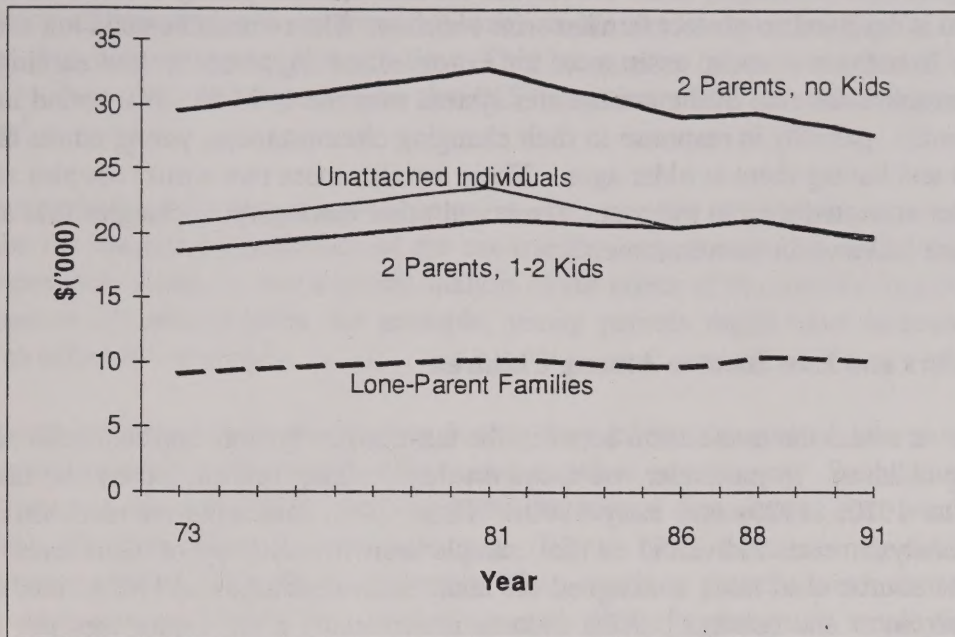
Chart 5: Real Median Disposable Income (AE Adjusted) Families 20 to 26

Chart showing lines for: 2 Parents, no Kids; 2 Parents, 1-2 Kids; Lone-Parent Families; Unattached Individuals. Y-axis $('000) from 0 to 30, X-axis Year from 73 to 91.
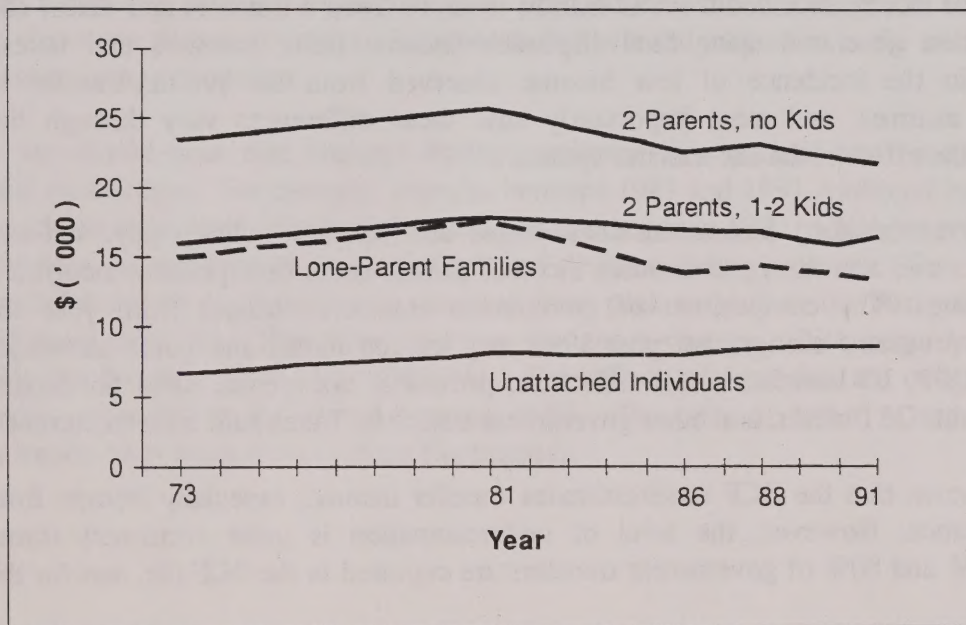
There are several reasons why young families with children may have avoided the worst impacts of the more general deterioration of the labour market conditions of young adults. First, the tax-transfer system is designed to protect families *with children*. The refundable child tax credit (now the Child Tax Benefit) and social assistance, for example, are triggered by low earnings among parents. We examine the role of the tax-transfer system over the 1973 to 1991 period in the next section. Secondly, partially in response to their changing circumstances, young adults are having fewer children and having them at older ages. There are also more two earner couples and young adults are better educated than in the past. These and other demographic changes that affect low income rates are taken up in section three.

Taxes, Transfers and Low Income Among Children

In this section we assess the association between the tax-transfer system, and the incidence of low income among children. In particular, we focus on the changing role played by the tax-transfer system over the 1970s, 1980s and early 1990s. First a few comments on methodology. To conduct this analysis, each individual in the sample from the Survey of Consumer Finances (SCF), the data source used here, is assigned the adult equivalent adjusted (AEA) income of the family to which he or she belongs.[4] AEA income is essentially a per capita measure of family income which has been adjusted to take account of economies of scale achieved in larger families (see footnote 3, above). Having computed adult equivalent adjusted family incomes, we compare the median incomes and rate of low income based on two different income distributions: first the distribution of income received from all market sources (before transfers and taxes) and second, the distribution generated using final disposable income (after transfers and taxes). The differences in the incidence of low income observed from the pre-tax/transfer and post-tax/transfer incomes, and most importantly how these differences vary through time, is an indicator of the effect of the tax-transfer system.

Pre transfer/tax (market) income includes wages and salaries, military pay, self-employment income (farm and non-farm), investment income, private retirement pension income, and other money earnings. The composition of government transfers changes from year to year as government programs change, but post 1990 they include family and youth allowances, OAS, GIS, CPP, QPP, UI benefits, social assistance, provincial tax credits, child tax credits, federal sales tax credit, GST credit, and other government transfers. Taxes paid refer to income taxes.

It is well known that the SCF underestimates transfer income, especially income from UI and social assistance. However, the level of underestimation is quite consistent through time. Between 75% and 80% of government transfers are captured in the SCF file, and for the years in

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[4] Economic families are used in this section. This means that incomes from persons outside the immediate family that are related by marriage or blood are included. This is a fairly conservative approach to measuring the changing economic conditions of Canadians over time, since if relatives choose to live together in the late 1980s or 1990s more than they did in the early 1970s because of worsening economic conditions, this would not be picked up in this analysis. If census (immediate) families were employed, some relatives in the household would be viewed as unattached individuals; they are not seen as having access to the economic resources of other relatives in the household. This is not true among economic families, which are used here. Thus, the impact of behavioural changes related to the declining market incomes of the young may be understated.

which we are most interested, notably 1973, 1981, 1986 and 1988, comparisons with other data sources indicate that SCF captured about 77% of all transfer payments. Hence our assessment of the effect of transfers is a conservative one, as we are underestimating its impact on family income, but it is consistent through time. This latter point is most important in the analysis to follow. Taxes payable reported in the SCF constitute 98% of those reported by Revenue Canada[5].

The comparison of the rate of low incomes on a pre-transfer and post-transfer basis is intended to describe the changing significance of the tax-transfer system over the 1973-91 period. This is a decomposition of history, not a causal analysis of the effect of the transfer system on poverty. In the absence of child benefits, for example, young parents might have increased their working hours to offset lower wages.

A frequent criticism of social transfers is that they inhibit the sort of labour market and other behavioural responses that would make social transfers unnecessary. Such claims are difficult to assess because the real world rarely provides the natural experiments that would be required to test them. Rebecca Blank and her colleagues (Blank, 1994) have recently published a series of comparative studies that refer to this issue. They conclude that the work disincentive effects of social safety nets are simply too small to generate the large changes in employment and earnings patterns of the past two decades. In an analysis of Canadian and US poverty, Hanratty and Blank (1992) conclude that behavioural responses to social transfers are likely a fairly small part of the observed differences between the countries. While such work disincentive effects exist, the question is whether they are large enough to produce the kind of changes in earnings outlined earlier. Since we do not attempt to incorporate behavioural responses in the analysis, we return to this issue in the conclusion.

Finally we should note that changes during particular time periods have somewhat different analytical significance. For example, changes between 1981 and 1991 confound long term secular trends with the short term effects of the recession that began in 1990. Child poverty, for example, typically rises during economic contractions and declines during recovery. For this reason, we give special attention to changes that occurred from peak to peak in the business cycle, notably 1981-88 (and 1973-81). This does not mean we ignore changes which occur between peak to trough in the business cycle (e.g. 1988-91). The effects of recession are quite real and often substantial, especially in the life of a young child. The point is rather to separate long-term secular trends from short-term cyclical fluctuations.

Results

Government transfers have become an increasingly important source of income for young people in general, and young families with children in particular. The relative shares of earnings and transfers in the "income package" of low income families with children were essentially inverted

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[5] After adjustments are made to the Revenue Canada figures to make the two sources conceptually comparable. In SCF an individuals taxes payable are estimated using an algorithm that essentially completes the tax form for each person based on the information available in SCF.

between 1973 and 1991 (Chart 6). In families with young children (0-6) and less than half the median income, the share of disposable income from government transfers rose from 36% in 1973, to 45% in 1981, 56% in 1988, and 63% in 1991 (Table 1). Transfers constituted one third of these families' incomes in 1973, two-thirds in 1991. The reliance on labour market earnings fell correspondingly; earnings as a percent of total disposable income fell from two-thirds in 1973 to one-third in 1991. Similar changes are observed for families with older children.[6]

Changes in the levels of income from transfers and market sources tell the same story as changes in shares of incomes. In constant (1991) dollars, average market earnings fell from $3400 to $2600 between 1973 and 1991 in the families of low income children age 0-6 (Table 2) while transfers increased from $1900 to $4600. A similar pattern is evident among older children. For the younger children, transfers rose more quickly than earnings declined with the result that the "depth of low income" -- the difference between average total income in low income families and 50% of median income -- declined slightly (Table 2). Average total income as a percent of our low income measure rose from 70% to 83% over the period. Among older children the "depth of low income" remained constant over the period.

Most of this increase in transfer payments was associated with increasing income from the child tax credit and social assistance (Table 3). For example, among 0-6 year olds in low income families the share of income from social assistance (welfare) rose from 17% in 1973 to 30% in 1991. The child tax credits, which did not exist in 1973, accounted for 10% of family income in 1991. Increasing UI accounted for only a very small part of the overall increase.

The increasing significance of transfer payments can be described by comparing the rate of low income among children based on market earnings (before taxes and transfers), with the rate of low income observed after taxes and transfers are included (i.e. disposable income).[7] Changes in the gap between these two measures of the incidence of low income among children reflect the increasing role played by the tax/transfer system.

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[6] Focusing on all families with young children (not just low income families), we find that in 1973, families with 0-6 year olds depended on transfers for 6.6% of their disposable income, 8.5% in 1981, and 11.0% in 1988.

[7] That is, calculate the proportion of young children in families with incomes below 0.5 of the overall median income, where income is defined first as before tax and transfer and then after tax and transfer.

Table 1: Sources of Disposable Family Income (AE Adjusted)
for Individuals in Families with less than 0.5 Median Disposable Income, 1973-1991

Percentage Distribution

Age of Individuals	Year	Total	Wages and Salaries	Other Factor Income	Total Market Income	UI Transfer Income	Other Transfer Income	Total Transfer Income	Tax
0 to 6	1973	100.0 %	65.4 %	3.0 %	68.4 %	6.7 %	29.2 %	35.9 %	-4.3 %
	1981	100.0 %	53.6 %	4.3 %	57.9 %	8.2 %	36.6 %	44.8 %	-2.8 %
	1988	100.0 %	41.9 %	5.0 %	46.9 %	7.9 %	47.9 %	55.8 %	-2.8 %
	1991	100.0 %	35.4 %	3.7 %	39.1 %	8.9 %	54.2 %	63.1 %	-2.2 %
7 to 14	1973	100.0 %	63.7 %	3.3 %	67.0 %	4.8 %	32.5 %	37.2 %	-4.3 %
	1981	100.0 %	50.6 %	5.3 %	55.9 %	6.2 %	40.8 %	47.0 %	-2.9 %
	1988	100.0 %	38.6 %	5.6 %	44.2 %	7.3 %	50.7 %	58.0 %	-2.2 %
	1991	100.0 %	36.8 %	6.8 %	43.6 %	7.3 %	52.3 %	59.6 %	-3.2 %
15 to 19	1973	100.0 %	66.5 %	3.5 %	70.0 %	3.9 %	30.4 %	34.3 %	-4.3 %
	1981	100.0 %	56.6 %	5.8 %	62.4 %	6.8 %	33.6 %	40.4 %	-2.8 %
	1988	100.0 %	50.2 %	4.9 %	55.1 %	6.6 %	40.3 %	46.9 %	-2.0 %
	1991	100.0 %	48.1 %	4.6 %	52.7 %	7.5 %	42.5 %	50.0 %	-2.7 %
20 to 24	1973	100.0 %	77.3 %	3.9 %	81.2 %	6.2 %	16.7 %	22.9 %	-4.2 %
	1981	100.0 %	60.9 %	5.0 %	65.9 %	8.9 %	27.6 %	36.5 %	-2.4 %
	1988	100.0 %	59.9 %	5.4 %	65.3 %	7.3 %	29.4 %	36.7 %	-2.0 %
	1991	100.0 %	59.6 %	4.1 %	63.7 %	8.8 %	30.1 %	38.9 %	-2.8 %
25 to 34	1973	100.0 %	71.3 %	3.5 %	74.8 %	7.2 %	24.0 %	31.2 %	-6.0 %
	1981	100.0 %	55.5 %	5.0 %	60.5 %	10.6 %	32.0 %	42.6 %	-3.0 %
	1988	100.0 %	48.5 %	4.5 %	53.0 %	10.0 %	39.7 %	49.7 %	-2.7 %
	1991	100.0 %	44.9 %	4.4 %	49.3 %	10.3 %	43.7 %	54.0 %	-3.3 %

Chart 6: **Source of Disposable Family Income, Children 0 to 14 in Families with < 0.5 Median Income**

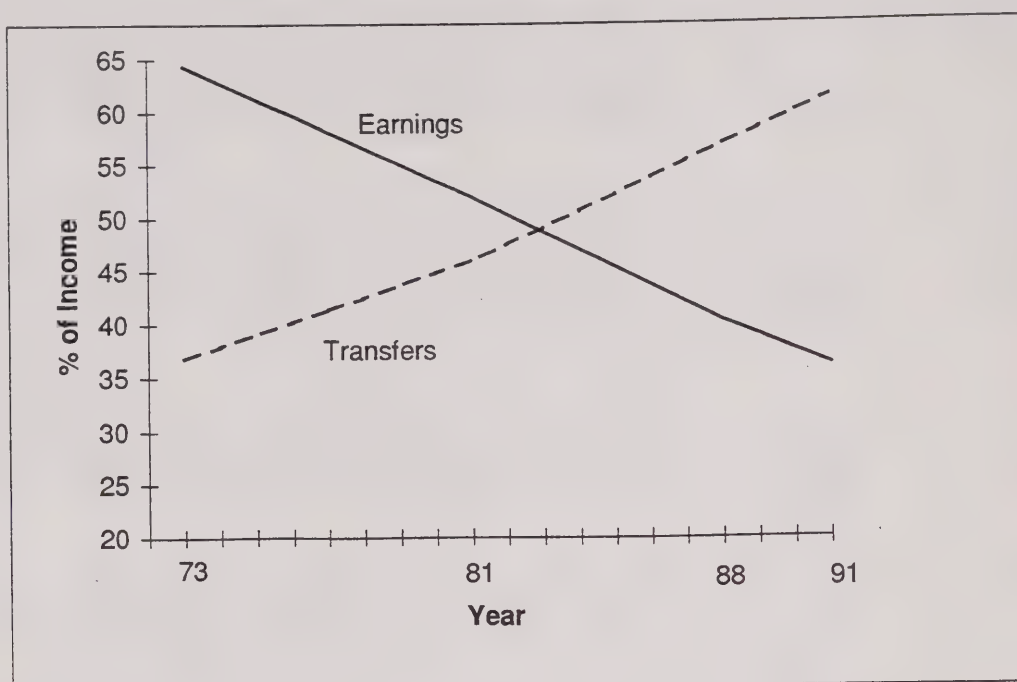**Table 2: Change in Market Earnings and Transfer Payments in Low Income Families with Children, 1973-91**

A. <u>Children 0-6 in families earning < 0.5 median income</u>

	1973	81	88	91
Average employment earnings				
- in constant dollars (000s)	3.4	3.7	3.2	2.6
- as % of ½ median income	44%	40%	34%	29%
Government Transfer income				
- in constant dollars (000s)	1.9	3.1	4.3	4.6
- as % of ½ median income	25%	33%	46%	51%
Average total income as % of ½ median income (i.e. depth of low income)	70%	76%	85%	83%
½ median income (000s) (adult eq. adj.)	7.7	9.2	9.3	9.0

B. <u>Children 7-14 in families earning < 0.5 median income</u>

	1973	81	88	91
Average employment earnings				
- in constant dollars (000s)	3.5	3.6	3.1	2.7
- as % of ½ median income	44%	35%	28%	26%
Government Transfer income				
- in constant dollars (000s)	2.1	3.3	4.6	4.4
- as % of ½ median income	27%	32%	41%	42%
Average total income as % of ½ median income (i.e. depth of low income)	70%	69%	71%	70%
½ median income (000s) (adult eq. adj.)	7.9	10.3	11.1	10.5

TABLE 3: SOURCES OF DISPOSABLE FAMILY INCOME (AE ADJUSTED) FOR INDIVIDUALS IN FAMILIES WITH LESS THAN 0.5 MEDIAN DISPOSABLE INCOME, 1973-1991

PERCENTAGE DISTRIBUTION

AGE OF INDIVIDUALS	YEAR	UI	SOCIAL ASSISTANCE	FAMILY AND YOUTH ALLOWANCE	CHILD TAX CREDIT	OTHER TAX CREDITS[8]	OTHER TRANSFERS[9]	TOTAL TRANSFERS
0 TO 6	73	6.7	16.7	8.4	0.0	2.1	1.9	35.9
	81	8.2	18.9	7.8	5.8	1.9	2.3	44.8
	88	7.9	27.4	6.6	9.1	2.9	1.9	55.8
	91	8.9	30.0	7.8	10.8	3.8	1.8	63.1
7 TO 14	73	4.8	18.5	9.7	0.0	1.6	2.7	37.2
	81	6.2	19.3	9.9	6.5	1.9	3.4	47.0
	88	7.3	25.9	7.9	9.6	3.6	3.8	58.0
	91	7.3	26.9	8.2	10.0	4.5	2.8	59.6

[8] FEDERAL SALES TAX CREDIT, GST CREDITS, OTHER GOVERNMENT INCOME.

[9] OAS, GIS, CPP/QPP, PROVINCIAL TAX CREDITS.

Detailed patterns in pre- and post-transfer/tax income by age are presented in Appendix Table 1. The prevalence of low incomes on a market income basis (before taxes and transfers) grew sharply among younger children (0-6) but only modestly after taxes and transfers. The incidence of low income on a pre-transfer basis rose from approximately 20 to 24 percent between 1981 and 1988 and then to 28 percent in 1991 among the youngest children, an increase of 8 percentage points. After taxes and transfers, however, the **actual** rate of low income rose by just over 1 percentage point between 1981 and 1988 (from 14.8% to 16.0%) and by another half percentage point (to 16.5%) as the recession of the nineties set in (Chart 7). Similar trends are observed for older children. The proportion of 7-14 year olds below 0.5 of the median rose by 1.4 percentage points between 1981 and 1988 based on market income alone, but actually fell 0.7 points when taxes and transfers are included.

These trends indicate two things. First, the incidence of low income is much lower after transfers than before, as one would expect. The redistribution of income does influence low income rates. Secondly, the extent of this redistribution has been increasing through the 1980s as market earnings have become a less significant share of family income among low income families. The gap between the rate of low income before and after transfers has been rising.

As expected, the prevalence of low incomes among 20-35 year olds also grew sharply on a market income basis over the 1980s, rising from 16 to almost 21 percent among 20-24 year olds and from 14 to 17 percent in the group aged 25-34. But the actual rate of low income (after transfer/taxes) increased significantly only for 20-24 year olds (Appendix Table 1). The expansion of the transfer system replaced the decline in market earnings among lower paid 25-34 years olds.

In the higher age groups, the prevalence of low incomes grew only modestly or was stable on a pre-transfer basis. After transfers and taxes, however, poverty rates actually declined among the population over 45.

In summary, declining relative earnings among young adults and increasing earnings inequality in general during the 1980s brought a rise in the percentage of Canadian children exposed to the risk of low income. This was accompanied by an increase in the role played by the transfer system. Public expenditures on social protection for the non-elderly rose from 5.7% of GDP in 1980 to 7.6% in 1990 (OECD , 1994). The combined result was more or less stable incidence of low income among children and young adults (except 20-24 year olds).

Exposure to Risk of Low Income: Changing Demographics And Labour Market Characteristics of Families

Our aim in this section is to show that transfers are not the only reason for relative stability in the prevalence of low income among Canadian children. The kinds of families in which children live today are very different from those of their predecessors of one or two decades ago. The cumulative effect of these changes has reduced the risk of poverty among children considerably.

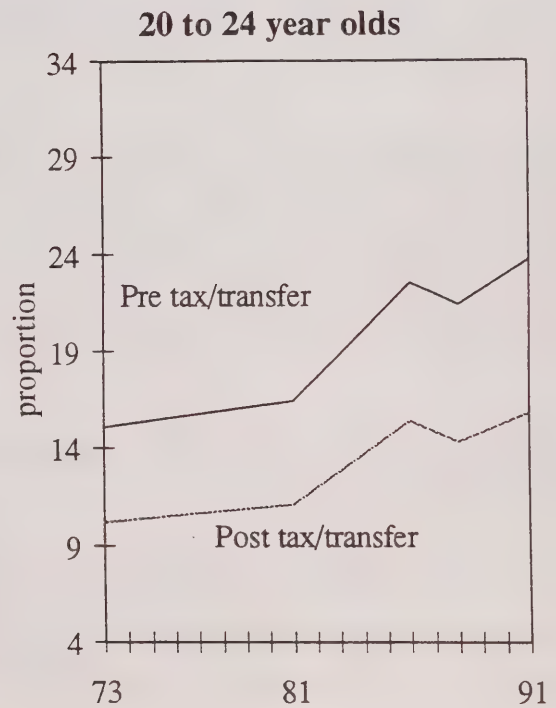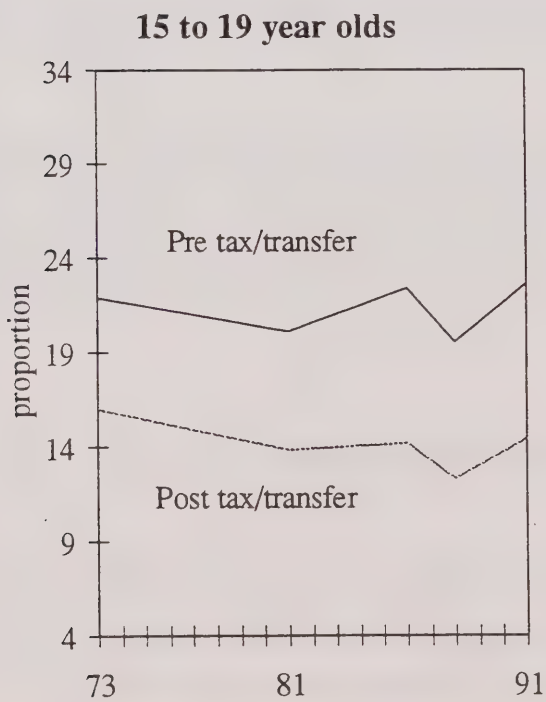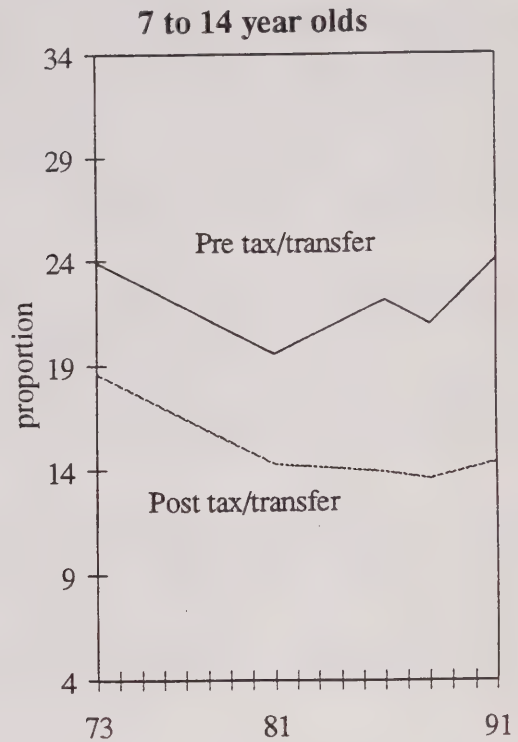Chart 7: Proportion of Individuals with Family Incomes Below 0.5 Median Income, by age
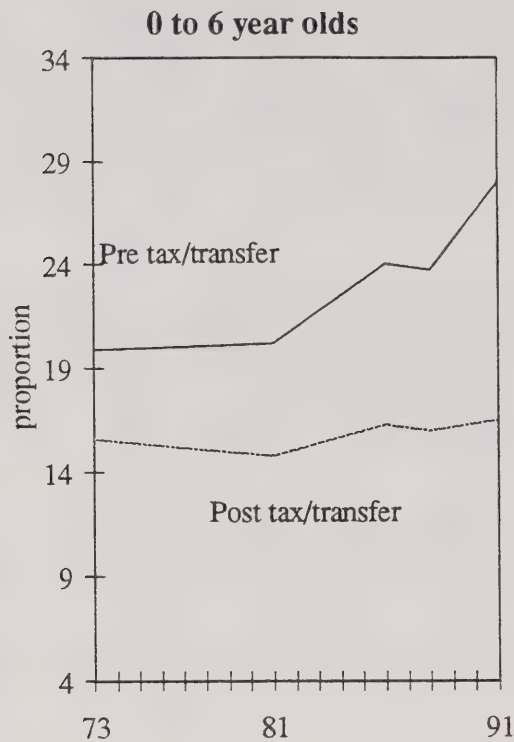
0 to 6 year olds

Pre tax/transfer

Post tax/transfer

proportion

7 to 14 year olds

Pre tax/transfer

Post tax/transfer

proportion

15 to 19 year olds

Pre tax/transfer

Post tax/transfer

proportion

20 to 24 year olds

Pre tax/transfer

Post tax/transfer

proportion

Chart 7 (Cont'd): Proportion of Individuals with Family Incomes Below 0.5 Median Income, by age

25 to 34 year olds

Pre tax/transfer

Post tax/transfer

35 to 44 year olds

Pre tax/transfer

Post tax/transfer

45 to 54 year olds

Pre tax/transfer

Post tax/transfer

55 to 64 year olds

Pre tax/transfer

Post tax/transfer
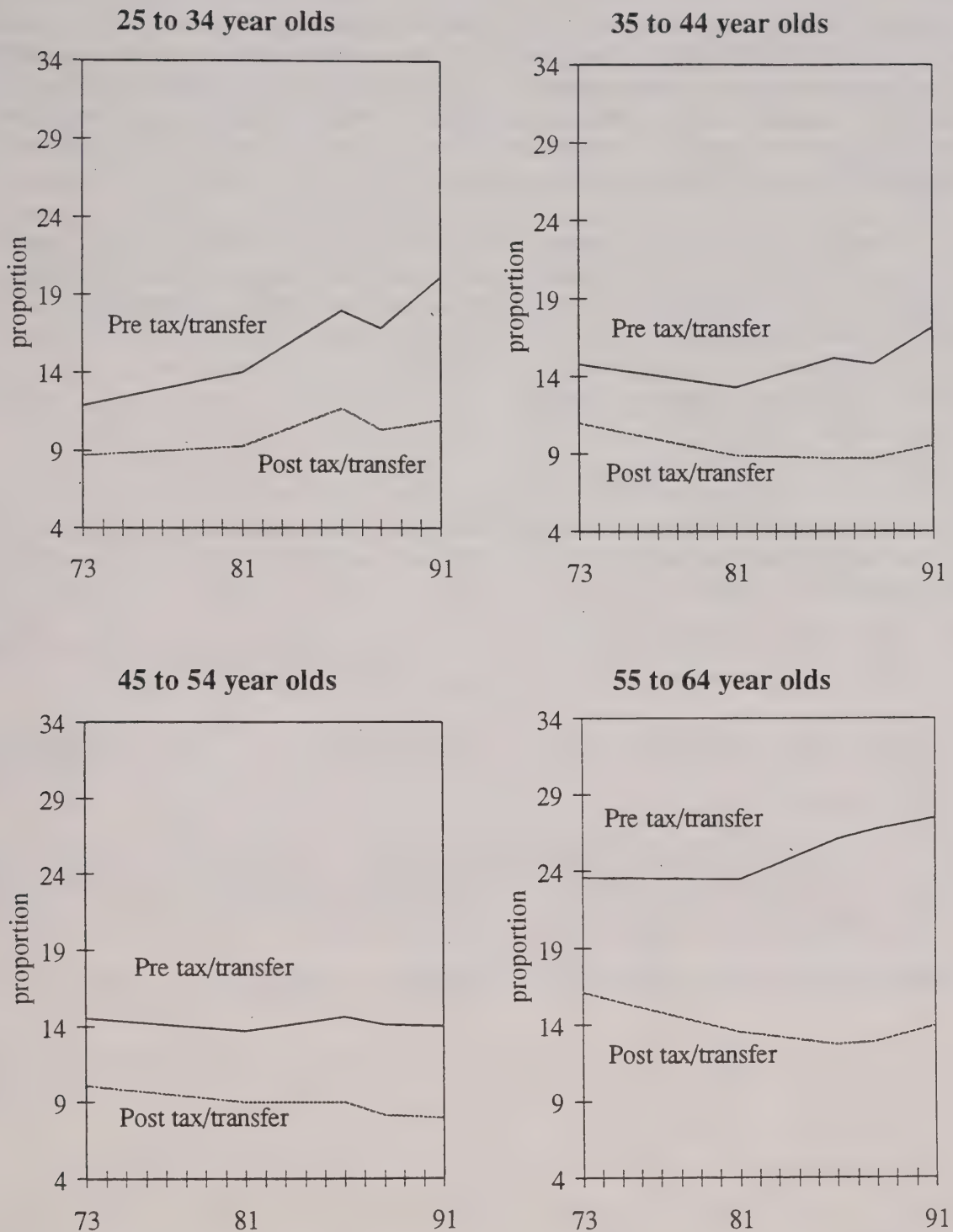
Children are poor because they live in poor families. Changes in the incidence of low income can occur because of changes in the characteristics of the households in which they reside, changes in the risk of poverty associated with these characteristics, or both. For example, the risk of low income is usually higher among children of parents with little education because of their lower earnings potential. Thus, a change in the educational composition of families with children can alter the overall incidence of low income. However, the risk of low income given a particular level of education may also change over time, as the wage gap between adults with more or less education rises or falls. This too would tend to influence the level of low income. The goal of this section is to assess the impact on low income of these two types of change. The emphasis is on the changing composition of families with children.

There is reason to believe that changing family structure (composition) has had a significant influence on low income among children. The demographic and labour market characteristics of the Canadian population has changed substantially since the 1970s. These changes are also evident in the changing characteristics of the households in which children reside (Tables 4 & 5). Among 0-6 year olds, for example, a number of changes took place which would tend to reduce the likelihood of low income among children.

These include:

1. The proportion of children in families where the highest earner has at least some post-secondary education rose from 25% in 1973 to over 40% in 1991, increasing the earning power of these families.

2. The share of children in families with two or more adult earners rose dramatically from 38% to 62% over the period, again increasing the earning power of families.

3. The number of children per family fell (the proportion with two or less increased from 60% to 70%), resulting in a lower risk of low income as there are fewer people to share the family resources.

4. The age at which families are having children rose (the proportion of children in families with the highest earner under age 26 fell from 18% to 11%), which would tend to increase the family income, as older families generally have higher earnings.

All of these changes would tend to reduce the likelihood of low income among children.

There is, of course, one quite high profile change in families that would tend to raise the incidence of low income among children; namely the increase in the proportion of children in single parent families, which rose from approximately 5% in 1973 to 11% in 1991.[10]

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[10] Recall we are using economic families, which includes immediate families and other related individuals. If a single mom moves in with her parents, the child would be seen to be in a household with two or more adults (in the economic family), not one. This would not be seen as a single parent family in our work, since we are interested in the economic resources available to the child. Where single parents are defined an a "census" family basis, where only actual parents are included in the family, the share of children in single parent families is seen to be around 14% in 1991, not 11% as indicated here.

In light of these changes and their well known association with low income (Sharif and Phipps, 1994), our aim in this section is to estimate their effects on the prevalence of low income among children. We employ a commonly used approach of decomposing the total change in the dependent variable (the probability of a child having a family income below 50% of the median) into two components: first, that due to changes in the distribution of children among household types; and, second, that due to the changes in the relative risk of low income in households defined by a particular set of characteristic. Among other things, we show that over the 1973-91 period the actual incidence of low income among children age 0-6 changed very little. This modest change masked two much larger changes: a 4.7 percentage point <u>increase</u> because the likelihood of low income rose **within** family types (with a given set of characteristics) and a 3.8 percentage point <u>decline</u> because of changes in the distribution of children **among** family types. More simply, while on average the risk of low income among children in families with particular characteristics was rising over the period, this trend was offset by the fact more children were living in households with two earners, fewer of them had other siblings requiring support and so forth.

Martin Dooley (1993) has conducted a similar analysis using families rather than individuals as the unit of analysis and comes to somewhat different conclusions. His findings indicate that both the "within" and "between" group effects tended to reduce poverty between 1973 and 1990. These differences reflect differences in the unit of analysis (families vs individuals), the variables ("risk factors") included and methodology.[11] Gottschalk and Danziger (1993) also address this issue using a regression decomposition methodology and U.S. data, and conclude that changing characteristics of women and declining numbers of children per family had a reducing effect on child poverty, while the "within" group effects and increasing numbers of single parents tended to increase poverty among white children.

The Approach

We employ logistic regression analysis, where the dependent variable takes on the value 1 if a child is in a family with income below 0.5 of the median income. Income is adult equivalent adjusted disposable (after taxes and transfers) family income. The unit of analysis is the individual, and family characteristics, including income, are associated with each individual. The sample population weights are used in the logistic regressions. Separate regressions are run for children aged 0-6 and 7-14, as the income trends and the changing demographics are somewhat different for these populations of children.

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[11] Our analysis differs from Dooley's in a number of ways. First, our unit of observation is the individual, not the family; we look at the AE adjusted family income of individuals, not the total disposable family income of different types of families. Second, Dooley used Statistics Canada's low-income cutoff as the indicator of low income. We use the proportion of children below one-half of the median (disposable AE adjusted) income as an indicator of low income, in part so that we can compute "low income" based on both pre and post transfer incomes. Finally, we incorporated somewhat different variables, in particular the number of earners in the family, which is excluded in his analysis. It is likely that the inclusion of this variable, and the dramatic increase in the share of children in two earner families, accounts for much of the difference in our results.

Table 4: **Distribution of Children by a Number of Demographic/ Labour Market Variables - Aged 0-6 -**

	1973	1981	1988	1991
Age of Family*	%	%	%	%
<26	17.8	17.0	12.6	10.7
27-34	47.2	52.8	50.5	49.5
35-44	28.3	25.9	32.0	34.6
45-54	5.7	3.3	3.8	3.7
55 +	1.0	1.1	1.0	1.5
Education of Highest Earner				
Elementary	25.9	13.3	7.9	6.7
Secondary	48.2	49.2	48.4	52.0
College/Some P.S.	16.2	22.8	26.2	23.9
Univ Grad	9.6	14.7	17.5	17.4
Number of Adult Earners				
0	4.1	4.2	5.5	8.3
1	57.9	43.1	31.0	29.7
2 +	38.1	52.7	63.4	62.0
Number of Children in Family				
1	19.7	24.7	24.7	24.3
2	40.2	47.3	48.3	46.3
3	23.4	20.8	19.5	21.2
4 +	16.6	7.3	7.5	8.3
Family Type				
Single Parent	5.5	6.4	9.3	10.7
Two Parent	94.5	93.6	90.7	89.3

* determined by the age of the highest earner in the family

Table 5: **Distribution of Children by a Number of Demographic/ Labour Market Variables - Aged 7-14 -**

	1973	1981	1988	1991
Age of Family*	%	%	%	%
<26	2.9	2.7	1.6	1.7
27-34	15.9	21.9	21.0	20.9
35-44	52.8	54.0	60.5	58.9
45-54	24.0	18.2	14.6	16.5
55 +	4.5	3.2	2.3	2.1
Education of Highest Earner				
Elementary	34.7	23.2	12.7	9.3
Secondary	45.2	45.8	45.3	53.8
College/Some P.S.	12.8	18.5	24.2	20.4
Univ Grad	7.3	12.6	17.7	16.6
Number of Adult Earners				
0	4.6	4.3	5.1	6.1
1	41.4	31.6	25.5	25.1
2 +	54.1	64.1	69.4	68.8
Number of Children in Family				
1	15.5	24.4	24.2	24.0
2	31.3	42.3	45.7	45.0
3	25.9	23.2	21.8	22.0
4 +	27.3	10.2	8.4	9.0
Family Type				
Single Parent	4.0	7.8	9.9	11.0
Two Parent	96.0	92.2	90.2	89.0

*determined by the age of the highest earner in the family

The independent variables representing the labour market and demographic composition of the families of children include:

1. five dummy variables for family age, where age is defined by the age of the highest earner (less than 26, 27-34, 35-44, 45-54, over 55)

2. five dummy variables for family type and number of adult earners combined ((1) single parent/0 earners; (2) single parent /1 earner; (3) two-parent/ 0 earner; (4) two parent/ 1 earner; (5) two parent/ 2 or more adult earners)

3. four dummy variables for the number of children in the economic family (1, 2, 3, 4 or more)

4. four dummy variables for the education level of the adult with the highest earnings (elementary, secondary, some post-secondary or college completed, university completed)

Other interaction terms were considered, particularly between the single parent\two parent variable and education and age, but they were found to be insignificant, and hence dropped.

In essence, the change in the low income position of children is decomposed into that due to changes in the mix of children **among** demographic groups over the period, and that due to changes in the probability of having a low income **within** specific demographic groups (i.e. controlling for demographic change).

The logistic model is written as

$$Y = \frac{1}{1 + e^{-\beta x}} ;$$

where Y = 1 if a child's family income is< 0.5 median family income, 0 otherwise

Transforming in the usual manner, the equation we estimate is

$$L = \beta X + u$$

Where $L = \ln\left(\frac{P}{1-P}\right)$ is the logit, P=Pr{Y=1|X}, X is a vector of independent variables, β is the vector of associated coefficients

Using data for 1981, we obtain $L_{81} = \beta_{81} X_{81} + u$, and we then compute $\overline{P}_{81}$, the overall mean probability of a child having less than 0.5 medium family income in 1981. This calculation is done

in the manner described in the footnote below to ensure it matches the overall mean probability (i.e. proportion) observed in the raw data.[12]

To decompose the total <u>change</u> in P between, say 1981 and 1988, into that due to changes in family composition (i.e. changes in the independent variables) and changes in the risk of being in low income given a particular set of characteristics (i.e. changes in the coefficients), we:

1. Alter the composition of families (independent variables), keeping the value of the coefficients fixed at the 1981 values.

   Thus $L^* = \beta_{81} X_{88}$. We compute L^*, and calculate $\overline{P}^*$ as described in the footnote.
   Then $\overline{P}^* - \overline{P}_{81} =$ the change in $\overline{P}$ between 81 and 88 due to the change in the composition of families with children

2. We then alter the coefficients from their 1981 to 1988 values, thus;

   $L_{88} = \beta_{88} X_{88}$, and compute $\overline{P}_{88}$.
   Then $\overline{P}_{88} - \overline{P}^* =$ change in P due to change in the risk of being in low income given a particular set of family characteristics (i.e. to change in coefficients)

Whether the coefficients or the values of the variables are altered first does matter; it is done both ways and the average value of the two results used. Also, the usual caveat associated with the interpretation of such results applies here. There are no explicit behavioural links between the two basic factors (demographic change and the income position of children within demographic groups) in the model, although in reality there almost certainly are. To some extent, changes in the economic position of families and changes in family composition are jointly determined. Ideally one would like to estimate the effect of exogenous changes in demography and labour market circumstance on the likelihood of low income, but there is some endogeneity in the model. If economic conditions of, say, young families with low levels of education deteriorate, this may

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[12] To calculate the estimated mean probability of a child having a family income below one half the median, one could simply estimate the probability at the mean values of the variables. However, since we are using a nonlinear function, this typically does not match sample mean derived from the raw data. Thus, we estimate the mean probability by estimating the probability of <u>each</u> child in the sample having a family income below one half the median based on the regression equation and then averaging these probabilities across all individuals in the sample (using the sample weights). In this way the probability estimated using the regression equation matches the sample mean from the raw data.

Thus, $\overline{P}_{81} = \dfrac{\sum\limits_{i=1}^{n} w_i \, \hat{P}_{i,81}}{\sum\limits_{i=1}^{n} w_i}$

where w_i is the sample weight associated with individual i, n is the number of observations, and where $\hat{P}_{i,81}$ is the estimated probability for individual i in year 1981, which is computed as follows:

$\hat{P}_{i,81} = \dfrac{1}{1 + e^{-B_{81} X_{i,81}}}$

well influence their probability of having children, and hence the demographic composition of children. Also, declining labour market earnings of young individuals may have prompted many second earners in young families to enter the labour market. Such relationships are not addressed here. Hence, the results provide a decomposition of history in an accounting sense. They estimate the direct, but not indirect, influence of these factors on low income among children during the period. We believe that such estimates make a contribution to understanding changes in low income that took place over the past two decades. This approach and its results are of interest to policy-makers who are concerned about the impact of economic and demographic changes, regardless of their source.

The Results

The logistic regression results for 1973, 1981, 1988, and 1991, based on disposable (post tax/transfer) income, for both 0-6 and 7-14 year old children are shown in Appendix Table 2. Rather than referring directly to the coefficients, which are difficult to interpret in an intuitive manner, the actual probabilities[13] and relative probabilities[14] are also shown in the appendix for the years 1973, 1981, 1988 and 1991. There are a number of reasons to be interested in these probabilities. They demonstrate both the enormous difference in the risk of low income among children who are in different types of families, and how this gap in the risk of poverty has narrowed among some family types over the past twenty years. But as this story is not central to our analysis, we have relegated it to Appendix B, where interested readers can pursue it.

Decomposition Results For 1973 to 1991

Over the 1973-91 period, there was relatively little change in the actual incidence of low income, as noted earlier. For example, among children aged 0-6, the actual proportion with low incomes rose slightly...0.9%. But this small change masked two larger changes...a 4.7 percentage point **increase** because the likelihood of being in a low income group rose **within** the family types defined by the variables in the equation, and a 3.8 percentage point **decline** because the mix of children **among** the family types changed as described earlier between 1973 and 1991. More children were in households with two earners, they had fewer siblings, and so forth. Put another way, although the aggregate proportion of children in low income families changed little over the period, when the demographic mix of children is held constant, this rate is seen to rise. And this rise occurs <u>after</u> the increasing role of the transfer system, discussed earlier, is accounted for, since we are using after tax/transfer income in this analysis. As noted earlier, these two effects are not independent, and it is difficult to disentangle them. But demographic/labour changes in families have tended to put significant downward pressure on low income among children.

At first glance this finding seems contrary to popularly held beliefs, as it is well known that the proportion of children in single parent families has been increasing, and this would tend to

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[13] Evaluated at the mean values of the variables.

[14] Relative to the reference group with the lowest probability.

increase the incidence of low income. But other changes in family structure have been taking place that tend to swamp the effect of rising numbers of single parent families. They include in particular the trend towards more dual earner families and the decreasing number of children per family. While there has been an increase in the number of single parent families, which would have placed upward pressure on child poverty, this effect is small relative to other changes in the household characteristics of children.

The results for children aged 7-14 are more pronounced (Table 6). While the actual rate fell by 4.2 percentage points, this was associated largely with changing demographics, which put downward pressure to the tune of 7.0 percentage points on the share of children in low income. In contrast, the risk of low income within family types rose by 2.8 percentage points for this group.

Table 6: **Decomposition of the Change in Probability of Being in a Low Income Family, Children Aged 0-6 and 7-14, 1973-91 and 1981-88, Disposable Income**

	Probability of being in low income family**		Change in probability	Change* due to change in B coefficients	Change* due to change in value of variables (composition)
Children aged:	**1973**	**1991**			
0 - 6	.156	.165	+.009	+.047	-.038
7 - 14	.186	.144	-.042	+.028	-.070
	1981	**1988**			
0 - 6	.148	.160	+.012	+.024	-.012
7 - 14	.143	.136	-.007	+.015	-.021

*   the order in which the B's and X are altered from 1973 to 1991 matters. These values are the average of the two ordering, where first the B's are altered, followed by the X's, and then the opposite.

**   Below 0.5 median income

Results for the 1981- 1988 Period

The 1981-88 period is of particular interest for several reasons. First, much of the change in "demographics" occurred in the 1970s. Changing demographics may be less correlated with changes in the prevalence of low income in the 1980s. In particular, the major changes in the educational attainment, number of children and number of adult earners in families with children took place before 1981 (Table 4 and 5). These trends continued into the 1980s but at a decelerated pace. Conversely, changes in the economic fortunes of young adults -- the decline in real and relative earnings-- were mainly a product of the 1980s (Morissette, Myles and Picot, 1994). Finally, changes that occurred between 1988 and 1991 are affected by the recession that began in 1990, and hence confound any underlying secular trends with fluctuations in the business cycle. Focusing on 1981 and 1988, roughly business cycle peaks, allows us to focus on longer term trends which are not significantly influenced by business cycle variation.

Among 0-6 year olds, the actual proportion below one-half of the median income rose between 1981 and 1988, from 14.8 to 16.0 percent, a change of 1.2. As before, this small change was the result of two contrary motions. Changes in demography tended to reduce this by 1.2 while changes in the coefficients are associated with a rise of 2.4 percentage points. Similar trends are evident for the 7-14 age group; the decline of 0.7 percentage points was a combination of a 2.1 point decline due to demographic changes, and a 1.5 point increase due to changes in the likelihood of low income within groups. Thus, both factors played about an equal role over this period. Demographic effects were considerably less than during the 1973 to 1981 period, but still significant. During the 1980s the changing demographic/labour market participation pattern of families tended to reduce the incidence of low income among children.

Summary and Discussion

Rising inequality in labour market earnings has been among the most significant economic developments of the past two decades. Despite dramatic changes in the distribution of labour market incomes, however, the distribution of total family income has remained remarkably stable (Love and Poulin, 1992; Statistics Canada, 1993). Similarly, while young adults have borne the brunt of declining earnings at the bottom of the labour market, the prevalence of low incomes among young parents and their children has continued to follow the ups and downs of the business cycle rather than the long term secular trend towards lower earnings in this age group.

Our analysis has emphasized two reasons for this stability. As in previous studies (Dooley, 1993; Hanratty and Blank, 1992), we have documented the increasing importance of social transfers in stabilizing the economic conditions of young families and their children. Based on market income alone, children and their parents were at a substantially greater risk of being in a low income family in the late 1980s and early 1990s than in 1973 or 1981.

But transfers were not the whole story. The kinds of families in which children live today are very different from those of their predecessors of one or two decades ago. Their parents are having fewer children, and are having them at a later age; parents are better educated, are collectively working longer hours because mothers are more likely to be in the labour force. Rather than

losing the work ethic, young Canadian families are working harder to maintain their standard of living. These demographic/labour supply changes are to a considerable degree responsible for the apparent stability observed in the median incomes and rates of low income among young families. Holding demographic change constant, the risk of low income between 1973 and 1991 rose by 4.7 and 2.8 percentage points among 0-6 and 7-14 year old children respectively. And since this is based an post tax/transfer income, the effect of rising transfers has already been accounted for in this result. Changing demographics put substantial downward pressure on the aggregate rate of low income among children. While much has been made of the rise of single-parenthood and its consequences for child poverty, other behavioural changes among young adults more than offset this development.

To draw policy conclusions from these results, however, requires assumptions regarding causation. As we have emphasized, our analysis is a descriptive accounting of history, not behavioural-causal. Most notably, we do not directly account for possible work disincentive effects. There is a point often advanced by critics of social spending such as Charles Murray (1984) that easier access to social transfers is a major *cause* of low earnings and child poverty. By providing an alternative to the labour market, they argue, the welfare state creates incentives for individuals and families to reduce labour force participation and encourages dependency on the state. The relevant counterfactual then is not the actual historical pattern of low income under market earnings alone, which we present, but what *would* have happened in the absence of social transfers.

But the central issue is not whether work disincentives exist, they almost certainly do, but whether their magnitude could be such as to explain the declining market earnings and potentially rising low income observed in this work. We argue that the size of the disincentive effects are too small to explain most of the story we present here. There are a number of reasons we believe this. Hum and Simpson's (1991) review of labour supply elasticities indicates that the labour supply responses to changes in the tax-transfer system are quite small. Furthermore, there is a possibility that the very large changes in the inequality of labour market earnings in the 1980s could be explained by increasing disincentives in the transfer system. This was addressed in the US and largely rejected (Moffit, 1990). Furthermore, the decline in youth earnings, which is a large part of the story presented here, has been observed in most western countries (Davis, 1992) which have dramatically different social security systems with vastly different incentive effects. And there is the experience of the U.S. during the 1980s. They experienced rising earnings inequality and declining youth wages as we did here in Canada, but their transfer system was being retrended during this period. Hence, work disincentive effects would have been in the decline, not increasing, yet earnings fell none-the-less among the lower paid and younger workers. The most recent comparative evidence on the relation between social protection and labour market flexibility (Blank, 1994) concludes that if there is a trade-off, its magnitude is small. Another reason to believe that rising disincentive effects cannot account for the majority of the earning change observed in Canada is that for many of the programs, such as UI, the program was changed to make it less generous, not more, to individuals through the 1980s (Sargeant, 1995). Thus, one would expect disincentive effects to be reduced, not increased, at least in the UI system. Work disincentives associated with the social assistance (welfare) system could have been increasing through the 1980s in Canada as rules in some provinces were liberalized, however.

After almost a decade of research, explanations for the growth in inequality and declining earnings at the bottom of the labour market are not focusing on the effects of transfer systems, but have turned to the demand side of the labour market and emphasize changing trade patterns and new technologies. Our results indicate that in Canada both households and governments have responded to the labour market restructuring that has taken place as a result. During the 1980s, social transfers to non-elderly households increased from 5.5 to 7.6 percent of GDP (OECD, 1994). Young Canadian families are working more hours, having fewer children and bearing them at older ages than in the past. Changing labour market conditions have been met with adjustments in family structures rising transfer payments. The net effect has been stable "low income" rates among children. It remains to be seen whether these offsetting adjustments will prevail in the labour markets of the late 1990s.

Appendix Table 1: Changing Economic Status of Canadians by Age Group; Adult Equivalent Adjusted Family Income of Individuals

Age Group	Characteristics	1973	1981	1986	1988	1991
0 to 6	Number of Persons (' 000)	2,452	2,442	2,497	2,519	2,643
	Pre Tax Pre Transfer Income					
	Median Income (1991 $000's)	16.9	20.2	20.1	20.8	19.5
	Index (Base Year = 1973)	100	120	119	123	115
	Relative Median Income	0.93	0.90	0.90	0.89	0.88
	% Below 0.5 Median Income	19.9	20.2	24.0	23.7	28.0
	Post Tax Post Transfer Income					
	Median Income (1991 $000's)	15.4	18.3	18.2	18.7	18.0
	Index (Base Year = 1973)	100	119	118	121	117
	Relative Median Income	0.91	0.88	0.88	0.87	0.87
	% Below 0.5 Median Income	15.6	14.8	16.3	16.0	16.5
7 to 14	Number of Persons (' 000)	3,448	2,865	2,772	2,820	2,909
	Pre Tax Pre Transfer Income					
	Median Income (1991 $000's)	15.8	20.6	21.5	22.2	21.0
	Index (Base Year = 1973)	100	130	136	141	133
	Relative Median Income	0.87	0.92	0.96	0.95	0.95
	% Below 0.5 Median Income	23.9	19.6	22.1	21.0	24.1
	Post Tax Post Transfer Income					
	Median Income (1991 $000's)	14.6	18.9	19.1	19.6	18.9
	Index (Base Year = 1973)	100	130	131	135	130
	Relative Median Income	0.86	0.91	0.92	0.92	0.92
	% Below 0.5 Median Income	18.6	14.3	13.9	13.6	14.4
15 to 19	Number of Persons (' 000)	1,969	2,179	1,857	1,822	1,788
	Pre Tax Pre Transfer Income					
	Median Income (1991 $000's)	17.1	22.2	22.8	24.3	22.2
	Index (Base Year = 1973)	100	129	133	142	130
	Relative Median Income	0.94	0.99	1.02	1.04	1.01
	% Below 0.5 Median Income	21.9	20.1	22.4	19.5	22.6
	Post Tax Post Transfer Income					
	Median Income (1991 $000's)	16.2	20.4	20.8	21.4	20.2
	Index (Base Year = 1973)	100	126	128	132	124
	Relative Median Income	0.96	0.98	1.00	1.00	0.98
	% Below 0.5 Median Income	16.0	13.8	14.2	12.3	14.4

Appendix Table 1 (Cont'd): Changing Economic Status of Canadians by Age Group; Adult Equivalent Adjusted Family Income of Individuals

Age Group	Characteristics	1973	1981	1986	1988	1991
20 to 24	Number of Persons (' 000)	1,809	2,287	2,135	1,982	1,913
	Pre Tax Pre Transfer Income					
	Median Income (1991 $000's)	20.5	24.9	22.6	24.6	22.0
	Index (Base Year = 1973)	100	121	110	120	107
	Relative Median Income	1.12	1.11	1.00	1.05	1.00
	% Below 0.5 Median Income	15.1	16.4	22.5	21.4	23.7
	Post Tax Post Transfer Income					
	Median Income (1991 $000's)	18.9	22.6	20.6	22.1	20.6
	Index (Base Year = 1973)	100	120	109	117	109
	Relative Median Income	1.11	1.09	1.00	1.04	1.00
	% Below 0.5 Median Income	10.2	11.1	15.4	14.3	15.8
25 to 34	Number of Persons (' 000)	3,053	4,169	4,478	4,581	4,624
	Pre Tax Pre Transfer Income					
	Median Income (1991 $000's)	21.7	25.1	24.6	25.6	23.6
	Index (Base Year = 1973)	100	115	113	118	109
	Relative Median Income	1.19	1.12	1.09	1.09	1.07
	% Below 0.5 Median Income	11.9	14.0	18.0	16.9	20.1
	Post Tax Post Transfer Income					
	Median Income (1991 $000's)	19.2	22.2	21.7	22.2	21.1
	Index (Base Year = 1973)	100	116	113	116	110
	Relative Median Income	1.13	1.07	1.05	1.04	1.03
	% Below 0.5 Median Income	8.7	9.3	11.7	10.3	11.0
35 to 44	Number of Persons (' 000)	2,441	3,034	3,671	3,919	4,294
	Pre Tax Pre Transfer Income					
	Median Income (1991 $000's)	19.6	25.8	26.2	27.2	25.8
	Index (Base Year = 1973)	100	132	134	139	132
	Relative Median Income	1.07	1.15	1.17	1.16	1.17
	% Below 0.5 Median Income	14.8	13.3	15.2	14.8	17.2
	Post Tax Post Transfer Income					
	Median Income (1991 $000's)	17.6	22.7	22.5	23.0	22.3
	Index (Base Year = 1973)	100	129	128	131	127
	Relative Median Income	1.04	1.09	1.08	1.08	1.08
	% Below 0.5 Median Income	11.0	8.9	8.7	8.7	9.6

Appendix Table 1 (Cont'd): Changing Economic Status of Canadians by Age Group; Adult Equivalent Adjusted Family Income of Individuals

Age Group	Characteristics	1973	1981	1986	1988	1991
45 to 54	Number of Persons (' 000)	2,240	2,454	2,536	2,678	3,027
	Pre Tax Pre Transfer Income					
	Median Income (1991 $000's)	22.4	27.7	28.5	30.1	29.7
	Index (Base Year = 1973)	100	124	127	134	133
	Relative Median Income	1.23	1.24	1.27	1.29	1.35
	% Below 0.5 Median Income	14.5	13.7	14.6	14.1	14.0
	Post Tax Post Transfer Income					
	Median Income (1991 $000's)	20.1	24.8	24.6	26.0	25.6
	Index (Base Year = 1973)	100	123	122	129	127
	Relative Median Income	1.19	1.19	1.19	1.21	1.24
	% Below 0.5 Median Income	10.1	9.0	9.0	8.2	8.0
55 to 64	Number of Persons (' 000)	1,710	2,161	2,303	2,318	2,347
	Pre Tax Pre Transfer Income					
	Median Income (1991 $000's)	20.1	24.0	23.4	23.5	22.4
	Index (Base Year = 1973)	100	119	116	117	111
	Relative Median Income	1.11	1.07	1.04	1.00	1.01
	% Below 0.5 Median Income	23.6	23.5	26.1	26.8	27.5
	Post Tax Post Transfer Income					
	Median Income (1991 $000's)	19.1	22.7	22.5	22.6	21.9
	Index (Base Year = 1973)	100	119	118	118	115
	Relative Median Income	1.13	1.09	1.09	1.06	1.06
	% Below 0.5 Median Income	16.1	13.5	12.7	12.9	13.9
65 to 74	Number of Persons (' 000)	1,109	1,438	1,607	1,726	1,837
	Pre Tax Pre Transfer Income					
	Median Income (1991 $000's)	6.7	8.7	7.7	8.2	8.8
	Index (Base Year = 1973)	100	129	115	122	131
	Relative Median Income	0.37	0.39	0.34	0.35	0.40
	% Below 0.5 Median Income	56.4	56.2	60.1	59.7	56.3
	Post Tax Post Transfer Income					
	Median Income (1991 $000's)	13.0	16.2	16.8	17.4	18.1
	Index (Base Year = 1973)	100	125	129	134	139
	Relative Median Income	0.77	0.78	0.81	0.81	0.88
	% Below 0.5 Median Income	23.1	16.6	8.5	9.3	4.7

Appendix Table 1 (Cont'd): Changing Economic Status of Canadians by Age Group; Adult Equivalent
Adjusted Family Income of Individuals

Age Group	Characteristics	1973	1981	1986	1988	1991
Total Age	Number of Persons (' 000)	20,805	23,814	24,807	25,347	26,495
	Pre Tax Pre Transfer Income					
	Median Income (1991 $000's)	18.2	22.4	22.4	23.4	22.1
	Index (Base Year = 1973)	100	123	123	129	121
	Relative Median Income	1.00	1.00	1.00	1.00	1.00
	% Below 0.5 Median Income	21.5	21.1	24.4	23.8	25.6
	Post Tax Post Transfer Income					
	Median Income (1991 $000's)	16.9	20.8	20.7	21.4	20.6
	Index (Base Year = 1973)	100	123	122	126	122
	Relative Median Income	1.00	1.00	1.00	1.00	1.00
	% Below 0.5 Median Income	14.3	12.3	12.1	11.5	11.5

Appendix Table 2: Logistic Regression Results of the Probability of a Child Being in a Family with an Income Less than 0.5 Median Disposable Income

Aged 0 - 6

	1973 coefficient	t	1981 coefficient	t	1988 coefficient	t	1991 coefficient	t
intercept	-2.438	-19.97	-1.469	-14.92	-1.008	-8.93	-0.947	-8.91
Education								
elementary	0.832	11.45	1.093	13.54	0.765	6.87	0.554	5.12
secondary								
coll/some univ	-0.623	-5.13	-0.642	-6.80	-0.422	-4.86	-0.577	-6.91
univ degree	-1.625	-7.29	-0.732	-5.97	-0.817	-6.60	-0.829	-7.53
Age of Family								
<= 26								
27 - 34	-0.700	-7.14	-0.722	-8.40	-1.097	-11.40	-0.604	-6.35
35 - 44	-0.659	-6.14	-0.704	-7.02	-1.717	-15.26	-0.886	-8.36
45 - 54	-0.149 *	-1.03	-0.221 *	-1.34	-1.237	-6.24	-0.538	-2.78
55 +	0.073 *	0.25	-0.187 *	-0.67	-2.371	-5.92	-2.181	-6.27
Number of Earners/Family Type								
lone par/ no earn	4.852	18.18	4.397	17.43	4.108	18.31	2.478	21.60
lone par/ 1 earn	2.120	15.02	1.363	11.71	1.633	14.78	1.482	14.25
two par/ no earn	3.638	14.04	3.809	13.24	3.870	13.08	2.524	17.41
two par/ 1 earn								
two par/ 2+ earn	-0.791	-9.91	-1.214	-16.87	-1.362	-17.54	-1.409	-18.70
Number of Children								
1								
2	0.501	4.18	0.141 *	1.55	0.425	4.23	0.015 *	0.18
3	1.075	8.40	0.713	7.14	1.307	11.62	0.533	5.54
4 or more	2.168	16.84	1.302	10.84	2.001	14.93	1.156	9.77
Sample Size	10078		11704		10559		11310	
Model Chi Square	2577.63		2868.48		3522.35		3218.81	

* - not significant

Appendix Table 2 (cont'd): Logistic Regression Results of the Probability of a Child Being in a Family with an Income Less than 0.5 Median Disposable Income

Aged 7 - 14

	1973 coefficient	t	1981 coefficient	t	1988 coefficient	t	1991 coefficient	t
intercept	-1.909	-11.68	-1.034	-6.34	-0.703	-3.30	-0.458	-2.14
Education								
elementary	0.854	15.57	0.872	12.93	0.726	8.18	0.513	5.58
secondary								
coll/some univ	-0.658	-6.23	-0.773	-7.84	-0.559	-6.34	-0.674	-7.61
univ degree	-2.575	-9.57	-1.247	-8.62	-1.327	-10.06	-1.027	-8.94
Age of Family								
<= 26								
27 - 34	-0.841	-5.49	-0.940	-6.13	-1.071	-5.23	-1.100	-5.30
35 - 44	-0.679	-4.80	-1.253	-8.52	-1.452	-7.24	-1.177	-5.81
45 - 54	-0.397	-2.74	-0.878	-5.61	-1.157	-5.42	-1.220	-5.65
55 +	0.014 *	0.08	-0.543	-2.66	-1.226	-4.45	-0.693	-2.59
Number of Earners/Family Type								
lone par/ no earn	3.890	15.78	3.967	18.35	3.951	18.81	2.740	20.38
lone par/ 1 earn	0.989	7.24	0.857	8.37	0.844	7.90	0.421	4.12
two par/ no earn	3.593	19.25	3.667	16.90	3.360	17.83	2.496	15.22
two par/ 1 earn								
two par/ 2+ earn	-0.929	-16.89	-1.361	-20.53	-1.179	-15.36	-1.332	-18.60
Number of Children								
1								
2	0.267	2.58	0.294	3.26	0.217	2.27	0.109 *	1.26
3	0.812	7.89	0.821	8.66	0.807	7.62	0.554	5.83
4 or more	1.841	18.72	1.436	13.57	1.665	13.97	1.338	12.32
Sample Size	14175		13734		11821		12450	
Model Chi Square	3696.33		3446.87		3026.36		2894.87	

* - not significant

Appendix B: The Probability of a Child Being in a Low Income Family in 1973, 1981, 1988, and 1991

For ease of interpretation, the actual probabilities of a child being in low income, given the characteristics of the family, are computed below. For any given variable (e.g. education), the change in the probabilities across different levels of education are computed at the mean value of the other variable in the equation. Relative probabilities (i.e. relative to some reference group) are also shown, and perhaps more interestingly, changes in these relative probabilities through time are shown.

We are interested in these probabilities for two reasons. First, they present an informative story regarding the association between being in a particular type of family and the risk of low income. They also indicate how this association has changed through time. Secondly, the often dramatic change in the demographic mix of families noted in the main text will influence the rate of low income only if there is significant variation in this rate among demographic groups. It is clear that there is.

- For example, in 1991 a child in a family where the highest earner had an elementary education was 3.4 to 4.0 times more likely to have a low family income than one in a university graduate-headed family, controlling for the other variables (Appendix Table 3).

- Children in single earner (two parent) families were 3.5 times as likely to have a low income as their two earner counterparts (controlling for other variables).

- The probability of low income was from 1.4 to 2.8 times higher in single parent one earner families than the two parent one earner family.

- In 1991, children in families with 4 or more children were 2.4 to 3.1 times more likely to have a low family income than those with a single child (controlling for other variables).

The magnitudes of the differences are very large. Hence, any change in the demographic composition among these groups could have a dramatic effect on the overall proportion of children with low income.

Appendix Table 3: Relative Probabilities of a Child Being in a Family with a Disposable Income Less than 0.5 Median Disposable Income: Estimated from a Logistic Regression Model
Children Aged 0 - 6 years

	1973 probability (1)	relative probability (2)	1981 probability (1)	relative probability (2)	1988 probability (1)	relative probability (2)	1991 probability (1)	relative probability (2)
Education								
elementary	0.202	9.515	0.259	4.855	0.204	4.078	0.194	3.409
secondary	0.099	4.672	0.105	1.965	0.107	2.130	0.121	2.135
coll / some univ	0.056	2.626	0.058	1.088	0.073	1.450	0.072	1.267
univ degree	0.021	1.000	0.053	1.000	0.050	1.000	0.057	1.000
Age of Family								
<= 26	0.151	1.791	0.157	1.863	0.242	4.464	0.173	2.179
27 - 34	0.081	0.963	0.083	0.984	0.096	1.777	0.102	1.292
35 - 44	0.085	1.000	0.084	1.000	0.054	1.000	0.079	1.000
45 - 54	0.133 *	1.576	0.130 *	1.541	0.085	1.564	0.109	1.372
55 +	0.161 *	1.906	0.133 *	1.588	0.029	0.534	0.023	0.291
Number of Earners/Family Type								
lone par/ no earn	0.935	19.338	0.928	20.610	0.912	21.755	0.699	15.364
lone par/ 1 earn	0.483	9.984	0.383	8.502	0.467	11.127	0.462	10.153
two par/ no earn	0.810	16.751	0.877	19.488	0.891	21.255	0.709	15.573
two par/ 1 earn	0.101	2.083	0.137	3.043	0.146	3.481	0.163	3.587
two par/ 2+ earn	0.048	1.000	0.045	1.000	0.042	1.000	0.046	1.000
Number of Children								
1	0.045	1.000	0.071	1.000	0.051	1.000	0.080	1.000
2	0.072	1.603	0.081 *	1.139	0.076	1.490	0.081 *	1.014
3	0.121	2.698	0.136	1.900	0.165	3.251	0.129	1.613
4 or more	0.290	6.493	0.220	3.087	0.283	5.583	0.217	2.704

1) Evaluated at the mean value of the other variables. This is done by using the weighted sum of the B's for each family of dummy variables, where the weight is the share of the population in that specific category
(2) Relative to the lowest group
* Not significantly different from the reference group used in the regression.

Appendix Table 3 (cont'd):   Relative Probabilities of a Child Being in a Family with a Disposable Income Less than 0.5 Median Disposable Income: Estimated from a Logistic Regression Model Children Aged 7 - 14 years

	1973 probability (1)	relative probability (2)	1981 probability (1)	relative probability (2)	1988 probability (1)	relative probability (2)	1991 probability (1)	relative probability (2)
Education								
elementary	0.240	23.683	0.195	6.899	0.193	6.478	0.180	4.003
secondary	0.118	11.696	0.092	3.252	0.104	3.482	0.116	2.583
coll / some univ	0.065	6.427	0.045	1.580	0.062	2.084	0.063	1.396
univ degree	0.010	1.000	0.028	1.000	0.030	1.000	0.045	1.000
Age of Family								
<= 26	0.198	1.779	0.209	2.977	0.243	3.478	0.241	2.704
27 - 34	0.096	0.864	0.094	1.333	0.099	1.418	0.095	1.072
35 - 44	0.111	1.000	0.070	1.000	0.070	1.000	0.089	1.000
45 - 54	0.142	1.278	0.099	1.410	0.092	1.312	0.086	0.961
55 +	0.200 *	1.798	0.133	1.895	0.086	1.233	0.137	1.537
Number of Earners/Family Type								
lone par/ no earn	0.902	13.094	0.903	20.798	0.889	19.628	0.764	14.616
lone par/ 1 earn	0.335	4.862	0.294	6.776	0.264	5.829	0.242	4.621
two par/ no earn	0.872	12.662	0.874	20.117	0.816	18.015	0.717	13.719
two par/ 1 earn	0.158	2.290	0.150	3.463	0.134	2.949	0.173	3.307
two par/ 2+ earn	0.069	1.000	0.043	1.000	0.045	1.000	0.052	1.000
Number of Children								
1	0.058	1.000	0.055	1.000	0.055	1.000	0.071	1.000
2	0.075	1.283	0.072	1.317	0.067	1.226	0.078 *	1.106
3	0.122	2.099	0.116	2.125	0.115	2.098	0.117	1.654
4 or more	0.281	4.813	0.196	3.576	0.234	4.285	0.224	3.182

1) Evaluated at the mean value of the other variables. This is done by using the weighted sum of the B's for each family of dummy variables, where the weight is the share of the population in that specific category

(2) Relative to the lowest group

*   Not significantly different from the reference group used in the regression.

Changes in the risk of poverty associated with particular family types and labour market characteristics have changed quite substantially since the 1970s. There has been significant compression in the relative risk of poverty between family types largely because the probability of low income among traditionally advantaged groups has risen. For example, the relative advantage for children with university educated parents compared to those with elementary educated parents was reduced from a factor of 10 in 1973 to a factor of 3 in 1991. Unfortunately, this was not because the probability of low income fell significantly among the elementary educated families, rather it rose among the university educated (from 2.1% in 1973 to 5.7% in 1991).

The same compression in the relative probabilities is observed for other variables, notably the number of children and family type/number of earners (Appendix Table 3). Again, this compression usually results from a rising probability of low income among the relatively advantaged groups, rather then a decline among the more disadvantaged. For example, the relative position of children in single parent one-earner families to their two parent counterparts was compressed (from a factor of 4.8 in 1973 to 2.8 in 1991) largely because of rising probabilities of low income among two parent one earner families.[15]

The probability of low income has risen for many groups, particularly the relatively advantaged groups, over the period. The decomposition conducted in the main text demonstrates the same point; after controlling for demographic changes, the incidence of low income among children is seen to rise. Demographic changes will be seen to have a very large influence on low income, because such changes have been substantial, as noted earlier.

In summary, the probabilities of low income have increased within many groups, and the mix of children among family types has changed substantially over the period. The influence of these changes on the incidence of low income is estimated in the main text.

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[15] The exception is the probability of low income among single parent/0 earner families. This fell significantly, likely because of the increasing influence of the transfer system.

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